

WHAT IS CLAIMED IS:

1. A top separator configured to be used in a continuous digester for producing chemical cellulose pulp from cellulose chips having a digester vessel with an upper section wherein said vessel is at least partially filled with the cellulose chips and a liquor, said top separator comprising:

a lower chip inlet port, a chip conveyor, a screen adjacent the conveyor, an upper chip discharge chute, and a liquor outlet facing a side of the screen opposite to the conveyor, and

a chip inlet conduit adapted to extend through the vessel and to an external chip source, said inlet conduit having a first operational mode in fluid communication with the chip inlet port and a second operational mode in which the chip inlet conduit discharges directly into the vessel.

2. The top separator as in claim 1 wherein the chip inlet conduit is an inlet pipe further comprising a coupling at an section of the conduit in the vessel and upstream of a connection to the chip inlet port, wherein the coupling switches the inlet conduit between the first operation mode and the second operational mode.

3. The top separator as in claim 2 wherein the coupling is a flange coupling.

4. The top separator as in claim 1 wherein said screen further comprises a bottom screen, and said bottom screen is detached while said chip inlet is in the second operational mode.

5. The top separator as in claim 1 wherein said conveyor is a screw conveyor having a first rotational direction used while said chip inlet is in said first operational mode and a second rotational direction used while said chip inlet is in said second operational mode.

6. The top separator as in claim 1 wherein the chip inlet conduit further comprises a first chip inlet pipe extending into the vessel and in fluid communication with the chip inlet port and a second chip inlet pipe extending into the vessel and having a discharge port directly open to the vessel and below the separator.

7. The top separator as in claim 1 wherein the digester is a vapor phase digester when the chip inlet port is in said first operational mode and is a hydraulic digester when the chip inlet port is in said second operational mode.

8. A top separator for a continuous digester for producing chemical cellulose pulp from cellulose chips, wherein said vessel is at least partially filled with the cellulose chips and a liquor, said top separator comprising:

a chip conveyor, a screen adjacent the conveyor, an upper chip discharge chute, and a liquor outlet facing a side of the screen opposite to the conveyor, and

a chip inlet conduit extending into the vessel and discharging a chip slurry directly into the vessel separately of the separator.

9. The top separator as in claim 8 wherein the vessel is filled with liquor up to a level at least above the upper chip discharge chute of the separator.

10. A continuous digester as in claim 8 wherein the vessel is filled with liquor up to a level at least above the upper chip discharge chute of the separator and liquor flows into the upper chip discharge chute.

11. A method for converting a vapor phase continuous digester to a hydraulic digester, wherein the digester comprises a digester vessel, a top separator in an upper section of the digester vessel and said further comprising a lower chip inlet port, a chip conveyor, a screen adjacent the conveyor, an upper chip discharge chute, and a liquor outlet facing a side of the screen opposite to the conveyor, and a chip inlet conduit extending into the vessel and having a coupling to the lower chip inlet port, said method comprising:

a. operating the vapor phase digester in a vapor phase mode wherein a chip slurry flows through the chip inlet conduit through the lower chip inlet port and is moved up through the top separator, is discharged from the upper chip discharge chute into an upper vapor region of the vessel and falls to a liquor filled region of the vessel;

b. ceasing the flow of the chip slurry to the chip inlet port;

c. establishing a chip slurry flow path to an upper portion of top separator, and

d. filling the vessel with liquor and chips such that the chip discharge chute is immersed in liquor.

12. The method as in claim 11 further comprising removing a bottom from the top separator.

13. The method as in claim 11 further comprising reversing a rotational direction of a conveyor in the top separator after ceasing the chip slurry flow.

14. The method as in claim 11 further comprising, after immersing the chute, flowing liquor into the top separator through the upper chip discharge chute and discharging liquor from the top separator through an open bottom of the separator.

15. A method for converting a vapor phase continuous digester to a hydraulic digester, wherein the digester comprises a digester vessel, a top separator in an upper section of the digester vessel and said further comprising a lower chip inlet port, a chip conveyor, a screen adjacent the conveyor, an upper chip discharge chute, and a liquor outlet facing a side of the screen opposite to the conveyor, and a chip inlet conduit extending into the vessel and having a coupling to the lower chip inlet port, said method comprising:

a. operating the vapor phase digester in a vapor phase mode wherein a chip slurry flows through the chip inlet conduit through the lower chip inlet port and is moved up through the top separator, is discharged from the upper chip discharge chute into an upper vapor region of the vessel and falls to a liquor filled region of the vessel;

b. ceasing the flow of the chip slurry to the chip inlet port;

c. immersing the chip discharge chute by filling the vessel with liquor, and

d. discharging the chip slurry directly from the chip inlet conduit into a fluid filled portion of the vessel.

16. The method as in claim 15 wherein the chip inlet port is connectable to a chip slurry inlet pipe and said method further comprising disconnecting the inlet pipe from the inlet port and discharging the chip slurry from the pipe directly into the vessel.

17. The method as in claim 15 wherein the chip inlet port is connected to a first chip slurry inlet pipe and a second chip slurry pipe discharges directly into the vessel, and said method further comprising ceasing the flow of the chip slurry through the first chip slurry inlet pipe and initiating a flow of the chip slurry through the second chip slurry pipe.

18. The method as in claim 15 wherein the digester is a hydraulic digester when the chip slurry is discharged directly into the fluid filled portion of the vessel.